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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/520,470

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Thomas Tuschl

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03/05/2009

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EXAMINER

SHIN, DANA H

ART UNIT

PAPER NUMBER

1635

NOTIFICATION DATE

DELIVERY MODE

03/05/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

Office Action Summary	Application No. 10/520,470	Applicant(s) TUSCHL ET AL.	
	Examiner DANA SHIN	Art Unit 1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2008 and 07 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-9,11-16,20,22-36 and 38-42 is/are pending in the application.
- 4a) Of the above claim(s) 22-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-9,11-16,20,32-36 and 38-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 7, 2009 has been entered.

Status of Claims

Claims 1, 3-9, 11-16, 20, 22-36, and 38-42 are pending in the instant application. Claims 22-31 have previously been withdrawn as being drawn to non-elected inventions. See applicant's election without traverse filed on June 4, 2007. Accordingly, claims 1, 3-9, 11-16, 20, 32-36, and 38-42 are currently under examination on the merits in the instant case.

Response to Arguments

The declaration under 37 CFR 1.132 filed on October 7, 2008 is sufficient to overcome the rejection of claims 1, 3-9, 11-16, 20, 32-36, and 38-41 based upon the Tijsterman et al. reference. The 35 U.S.C. 103(a) rejection of claims 1, 3-9, 11-16, 20, 32-36, and 38-41 has been withdrawn.

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Claim Objections

Claim 9 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Note that claim 9 depends from claim 1, which already recites “inhibiting the expression of a target transcript *in vitro* in mammalian cells”, which is the only limitation recited in claim 9. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-9, 11-16, 20, 32-36, and 38-42 are rejected under 35 U.S.C. 102(e) as being anticipated by McSwiggen (US 2003/0170891 A1).

The claims as currently written do not exclude a single-stranded RNA molecule that forms a hairpin (or stem loop) duplex RNA structure by self-complementarity, wherein the hairpin duplex RNA structure is up to 50 nucleotides in length and the antisense strand of at least 15 or 20 nucleotides is complementary to a target transcript (thus a sense strand of at least 15 or

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20 nucleotides and a hairpin sequence of at least 10 nucleotides), wherein the hairpin duplex RNA structure inhibits target transcript expression by RNAi.

In view of the foregoing, given the broadest reasonable interpretation of the claims, the single-stranded RNA molecule claimed in the instant case will be interpreted to read on a single-stranded RNA of up to 50 nucleotides in length that forms a self-complementary RNA duplex, which consequently inhibits target gene transcript by RNAi in a human cell *in vitro*, wherein the single-stranded RNA of up to 50 nucleotides in length comprises at least one modified nucleotide analogue, 5'-phosphoromidate, 5'-alkylphosphonate, 5'-alkyletherphosphonate, alpha-thiotriphosphate, wherein the single-stranded RNA further comprises a liposomal carrier and is associated with biodegradable polymers via a covalent coupling at the 3' end.

McSwiggen teaches a chemically modified single-stranded RNA molecule that forms self-complementary sense and antisense strands (stem region) and a circular hairpin loop, wherein the single-stranded RNA molecule comprises an antisense strand sequence that is at least 19 nucleotides complementary to a target transcript, wherein the single-stranded RNA molecule mediates RNAi, thereby inhibiting target transcript expression in human cells *in vitro*. McSwiggen teaches that chemical modifications incorporated into the single-stranded RNA molecule include modified nucleotide analogues such as alpha-thiotriphosphate nucleotide analogues, phosphorothioate linkages, 5'-methylphosphonate, 5'-phosphoramidate, wherein such modifications help improve stability of the RNA molecule. McSwiggen further teaches that the single-stranded RNAi-mediating RNA molecule further comprises a liposomal conjugate or a carrier or a biodegradable polymer via a biodegradable covalent linker for *in vitro* delivery of the RNA molecule to target mammalian cells. McSwiggen also teaches that the chemically modified

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single-stranded RNA molecule is useful for diagnostic applications. See paragraphs 0008, 0016, 0024, 0030, 0083-0084, 0115, 0201, 0204-0205, 0214, 0216-0219, 0224, 0226-0228, 0305.

Accordingly, all claim limitations are taught by McSwiggen.

Claims 1, 3-9, 11-12, 16, 20, 33-34, and 38-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Finney et al. (US 2002/0150945 A1).

The claims are described above.

Finney et al. teach a chemically modified single-stranded RNAi molecule that forms a self-complementary duplex RNA comprising a hairpin loop, wherein the RNAi molecule decreases gene expression in human cells *in vitro*. They teach that the single-stranded RNAi molecule forms preferably 21-23 base paired duplex region and comprises chemical modifications such as methyl and other phosphonates, phosphoramidates, and nucleotide analogues, which improve nuclease resistance and cellular uptake. They teach that the RNAi molecule further comprises a liposomal carrier for facilitated entry into cells and can be used in diagnostic applications. See paragraphs 0091, 0312-0318, 0326, 0334. Accordingly, all claim limitations are taught by Finney et al.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANA SHIN whose telephone number is (571)272-8008. The examiner can normally be reached on Monday through Friday, 7am-3:30pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James (Doug) Schultz can be reached on 571-272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dana Shin
Examiner
Art Unit 1635

/J. E. Angell/
Primary Examiner, Art Unit 1635